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PRIORITY OF HIEROCHLOA.

BY R. M. KACZMAREK.

Since the genus name *Galeorchis,*[1] (*Orchis spectabilis* Linn.), taken as type, supplants the generic names *Galearis* and *Galearia* which constitute synonyms, and likewise since the genus *Gillena* (Adans)[2] invalidates the genus *Gillenia* (Moench.)[3] or *Elodes* (Adans.)[4] reduces *Elodea* (Pursh)[5] to synonymy, accordingly, the genus name *Hierochloa* (Genelin) Beauv.,[6] ought to be substituted for the genus name *Savastana* (Schrank)[7] which constitutes a synonym to *Savastania* (Scopoli).[8]

Following is the resumé of some of the species:

Hierchloa odorata Wahl. Fl. Ups. p. 32, (1820).
Savastana odorata (Linn.) Scribn.

Hierochloa Nashii (Bicknell).
Savastana Nashii; (Bicknell).

Hierochloa pauciflora R. Br. App. Parry's Voy. p. 293, (1824).
Savastana pauciflora (R. Br.) Scribn.

Hierochloa alpina R. and S. Syst. Vol. II., p. 515, (1817).
Savastana alpina (Siv.) Scribn.

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NOTES ON CLEISTOGAMOUS FLOWERS OF VIOLETS.—II.

BY J. A. NIEUWLAND.

In examining the cleistogamous flowers of acaulescent violets, it was found that there was often present a short lanceolate, oblanceolate, to spatulate growth between the two fertile stamens.[1] It was thought at the first[2] that this third body was a sterile stamen. More careful examination of flowers of *Viola cucullata* Ait, (*Viola obliqua* Hill) showed that this process of greater or smaller size is exactly alternate with the two stamens and also alternate with the lower sepals. Specimens were found in which the broader expanded portion was violet in color and even had a trace of spur-like sac. It is therefore the reduced lower petal or keel. This becomes all the more evident when, as is usually the case, we find that the other 3 stamens and the other 4 petals are found exactly in their relative positions with respect to the very unequal sepals. These stamens and petals are, however, so far reduced or atrophied as to be represented only by small globular-tipped gland-like bodies.

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[1] Britton N. L. Manual Fl. N. U. S. Vol. I. p. 551, (1913).

[2] Adans. Fam. II., p. 166, (1763).

[3] Moench. Meth. Suppl. p. 286, (1802).

[4] Adans. Fam. Vol. II., p. 444, (1763).

[5] Pursh, Fl. Am. Sept. p. 360, (1814).

[6] Beauv. Agrost. p. 62, (1812). Hierochloe Gmel. S. G. Fl. Sibir. Vol. I., p. 100, (1747).

[7] Schrank, Baier, Fl. Vol. I., p. 100–137, (1789).

[8] Scopoli, Introd. p. 213, (1777).

In not a few instances *Viola cucullata* Ait. shows also one or two other petals, one of these often colored blue oftener white. These correspond by position to the lateral ones of the spring flowers of the same plant. Another notable peculiarity of this violet is that occasionally one finds a small stiped ovary within the well developed seed capsule. This ovary within another, reminds us of the somewhat similar growth of the "navel" orange. The small long styled ovary is developed inside from the middle of the torus, and the style with its broad spoon-like stigma reaches well towards the apex of the outer one which is by this time well "run to seed." Often the style of the inner ovary is bent back upon itself the whole being often nearly 6-7 mm. long and apparently devoid of ovules.

Cleistogamous flowers of violets being quite easily obtained and at the same time available during most of the summer and fall, may very appropriately serve teachers in demonstrating the germination and growth of pollen tubes into the ovary. The stigmas of these flowers being only openings at the end of the short curved style, and devoid of sticky exudation, the pollen grains often germinate in or near the anthers sending their tubes from the stamens to the ovary. Even in old cleistogamous flowers in which, as in *Viola cucullata*, the capsule is already over a centimetre and even 1½ cm. long, the cotton-like tufts of germinating pollen tubes may be seen with the naked eye near the top of the recurved style. The style may be sectioned even with a razor blade and the course of the pollen tubes traced within. Better results can perhaps be obtained by embedding in parafin and making thick sections of the style with any ordinary students microtome. Any of the caulescent or acaulescent violets serve the purpose. The flowers of *Viola cucullata* are, however, among the most suitable because of their larger size. The violet is readily distinguished even in summer by the long auricles to the rather long unequal sepals of the cleistogamous erect or ascending flowers. The flowers are in condition of showing pollen tubes when the peduncle which is at first erect, begins to curve giving the ovary a reflexed position. The degree of curvature is often a good indication of the various stages of fertilization. *Viola cucullata* is usually formed in most situations, and bears a great abundance of cleistogamous flowers until late in fall.

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[1] Nieuwland, J. A., Am. Mid. Nat. III. p. 85, (1913).

[2] l. c. p. 91.

POLYGONUM LONGISTYLUM SMALL, A SYNONYM.

BY J. A. NIEUWLAND.

On reading Rafinesque's description of his *Polygonum bicorne*[1] in the Flora Ludoviciana one can scarcely hesitate in believing that this author, or Robin from whom he may have gotten an original description, had in mind or more likely at hand, an abnormally large specimen of *Polygonum longistylum* Small.[2] There are characters about the description especially that of the "elongated exserted styles," that are unique for this plant, and found in no other American *Persicaria*. The locality in both cases of publication is the same. Rafinesque describes the plant as large, four or five feet high; Small's plant is given as but one or two feet high. If this discrepancy in size may be overlooked, then Small's name is a synonym. As the work of Rafinesque is rare, I shall quote the paragraph of his diagnosis in full:

"75. *Polygonum bicorne*. Raf. Caulibus ramosis, ramis geniculatis, patulis teretibus intus crenulatis; foliis petiolatis, lanceolatis, glabris; floribus spicatis confertis octandris, distylis, staminis inclusis, stylis exertis elongatis. Raf.—Renouée 1,

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[1] Rafinesque, C. S. Flora Ludoviciana, p. 29, (1817).

[2] Small, J. K. Bull. Torr. Bot. Club, 1. p. 169, (1894), also, do. Monograph Am. Sp. *Polygonum* p. 62, (1895).